

# Sustainable Farms and Fields

## *Practices that Sequester Carbon in the Soil*

SB 5947 was introduced during the 2019 legislative session. The legislative intent of the bill is, "...to provide financial assistance to farmers and ranchers who voluntarily adopt practices that reduce fossil-fuel energy usage on farms and ranches and increase the quantity of carbon stored on their land."<sup>1</sup>

This document illustrates several practices that sequester carbon which could be funded by the proposed Sustainable Farms and Fields grant program.

### **Rotational Grazing**

Planned rotational grazing is one practice that can sequester carbon in the soil. In 2008, Washington State University launched a demonstration project called *Beefing Up the Palouse* to explore rotational grazing cattle on marginal land that had been fallow under the federal Conservation Reserve Program (CRP).<sup>2</sup>

In this project, 200-300 head of cattle were rotated on 1000 acres through 3-5 acre paddocks every 12 hours. Gregg Beckley owner of G&L Farms in Adams County, where the demonstration project took place, described that, "The concept comes from large herds of bison that came across the plains where large, concentrated numbers of livestock would be in places for only a short period of time and not return to that same piece of ground for up to a year."<sup>3</sup> Moving the cattle frequently allows the grazed plants to regrow and establish a more vigorous root system, which increases soil organic matter and prevents erosion.



Watch this video to learn more about Beefing Up the Palouse: <https://tinyurl.com/beefingupthepalouse>

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<sup>1</sup> Second Substitute Senate Bill 5947

<sup>2</sup> *Beefing Up the Palouse - An Alternative to the Conservation Reserve Program (CRP) Final Report*. Retrieve from <https://s3.wp.wsu.edu/uploads/sites/2180/2013/06/beefing-up-the-palouse-final-report.pdf>

<sup>3</sup> Barnard, Kathy. *The best tool for long-term sustainability of former CRP land?*. Retrieved from <https://cahnrs.wsu.edu/organics/planned-grazing/>

*Rotational grazing is a practice that could be funded through a Sustainable Farms and Fields Grant Program*

**Example proposals:** Electric fencing and water infrastructure needed to implement rotational grazing

**Estimated costs:** \$43-\$100 per acre<sup>4</sup>

**Estimated carbon sequestered:** sequestered 15 lb CO<sub>2</sub> equivalent per year per acre<sup>5</sup>

**Other conservation benefits:** Soil health, erosion control, water retention

## Cover Cropping

Cover cropping benefits soil health in many ways, including erosion prevention, water retention, weed and pest management, nutrient management, and carbon sequestration.

Dale Gies, a farmer in Moses Lake, uses mustard cover crops in his two year rotation of wheat and potatoes.<sup>6</sup> The biofumigation properties of the mustard crop have been more effective than chemical means to control soil pathogens when Gies incorporates the cover crop into the soil at the right time. The cover cropping system has also increased soil organic matter in Gies's fields from 0.6% to 1.2%.

Watch this video to learn more about Dale Gies' cover cropping system: <https://tinyurl.com/GiesPotatoes>

*Cover cropping is a practice that could be funded through a Sustainable Farms and Fields Grant Program*

**Example SF&F project proposals:** Tractor implements to flail chop and incorporate the cover crop

**Estimated atmospheric carbon reduction:** reduced emission of 625 lb CO<sub>2</sub> equivalent per acre and sequestered 3,500 lb CO<sub>2</sub> per acre<sup>7</sup>

**Estimated cost:** \$1,500 for new tractor implements

**Other conservation benefits:** Soil health, erosion control, water retention

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*Photo credit: Washington State University, <https://cahnrs.wsu.edu/organics/planned-grazing/>*

<sup>4</sup> Undersander, D., et. al. (2002). Pastures for Profit: A Guide to Rotational Grazing. Retrieved from [https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1097378.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1097378.pdf). Converted 2002 dollars cited in the publication to 2019 dollars.

<sup>5</sup> COMET Planner. Retrieved from <http://comet-planner.com/> using the Conservation Practice Standard "Prescribed grazing" on 1000 acres in Adams County, WA on 11/15/2019.

<sup>6</sup> Yorgey, G., et. al. (2017). *Biofumigant Cover Cropping in Potatoes: Dale Gies*. Retrieved from <http://pubs.cahnrs.wsu.edu/publications/wp-content/uploads/sites/2/publications/pnw693.pdf>.

<sup>7</sup> <http://pubs.cahnrs.wsu.edu/publications/wp-content/uploads/sites/2/publications/pnw693.pdf>